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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/323,628	06/01/1999	KENSHIN KITOH	791-052	9448

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EXAMINER

SORKIN, DAVID L

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/323,628

Applicant(s)

KITOH, KENSHIN

Examiner

David L. Sorkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-23 and 25-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Applicant is advised that should claim 22 be found allowable, claim 3 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

2. In claim 16, line 6, "negative" should read - - negative - -.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, because claim 5 depends from a canceled claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 7, 17, 19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 8-185850. Regarding claim 7, JP 8-185850 discloses a lithium secondary battery

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comprising an internal electrode body including a positive electrode (2) a negative electrode (3), and separator (8), the positive and negative electrode being laminated with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming in direct contact with each other; an organic electrolyte (see paragraph [0035]); a plurality of positive electrode tabs (5a) connected to the positive electrode (see Fig. 2) and at least a plurality of negative electrode tabs (7a) connected to the negative electrode (see Fig. 3) for current collecting, wherein the tabs function as current fuses to become nonconductive in the event that a condition arises during discharge of the battery in which sufficient current to damage one or more components of the battery is provided (see paragraph [0044]). Regarding claim 17, the tabs are connected to positive and negative terminals by welding (see paragraphs [0033] and [0034]). Regarding claim 19, a battery capacity of not less than 5 Ah is disclosed in paragraph [0036] ("47 Ah"). Regarding claim 21, the battery is used for an electric vehicle (see paragraph [0002]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 4, 12, 14, 16, 18, 20, 22, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-185850 in view of Watanabe et al. (US 6,106,975). Regarding claims 3, 4 and 23, JP 8-185850 discloses a lithium secondary

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battery comprising an internal electrode body including a positive electrode (2) a negative electrode (3), and separator (8), the positive and negative electrode being laminated with the separator so that the positive electrode and the negative electrode are prevented by the separator from coming in direct contact with each other; an organic electrolyte (see paragraph [0035]); a plurality of positive electrode tabs (5a) connected to the positive electrode (see Fig. 2) and at least a plurality of negative electrode tabs (7a) connected to the negative electrode (see Fig. 3) for current collecting. The positive electrode tabs are 20 microns thick and the negative electrode tabs are 10 microns thick (see paragraph [0026]). Based upon the overall thickness of the battery of 30 mm and number of units (46 positive and 47 negative) (see paragraph [0020]), the disclosed separator thickness (25 microns, see paragraph [0023]) and collector thicknesses (10 and 20 microns, see paragraphs [0021] and [0022]), it is clear that an active layer is thicker than a tab. A total cross-sectional area of all the positive electrode tabs connected to the positive electrode is not less than 0.009 cm^2 and the tabs are aluminum (see paragraph [0040] where an aluminum tabs cross section of " 1.5 mm^2 ", which is 0.015 cm^2 is disclosed). A total cross-sectional area of all the negative electrode tabs connected to the negative electrode is not less than 0.005 cm^2 and the tabs are copper (see paragraph [0040] where a copper tabs cross section of " 0.83 mm^2 ", which is 0.0083 cm^2 is disclosed). JP 8-185850 discloses the electrode by being laminated rather than wound. Watanabe ('975) teaches that wound electrode bodies are an art recognized alternative to laminated electrode bodies (see col. 1, lines 17-22 and col. 2, lines 43-45; Figs. 22-27). It is considered that it would have been obvious to one

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of ordinary skill in the art to have constructed the electrode body of JP 8-185850 in a wound configuration rather than a laminated configuration, because Watanabe ('975) teaches that wound electrode bodies are an art recognized alternative to laminated electrode bodies (see col. 1, lines 17-22 and col. 2, lines 43-45; Figs. 22-27).

Regarding claims 12 and 26, specific values of the ratio of tab cross-sectional area to the internal resistance of the battery are not disclosed by the reference. However, it is stated that tab cross-sectional area should be selected in proportion to the resistance of internal components of the battery (see paragraphs, [0031], [0032], and [0042]).

Therefore it is considered that it would have been obvious to one of ordinary skill in the art to have selected an optimal or workable range of the claimed ratios. See *In re Aller* 105 USPQ 233, 235 (CCPA 1955). Regarding claim 14, while JP 8-185850 does not explicitly state that the resistance values of tabs are within 20% of an average value, it is considered that use of the word "units" throughout the reference would have suggested to one of ordinary skill in the art to have repeated substantially identical items. Regarding claim 16, the tabs are connected to positive and negative terminals by welding (see paragraphs [0033] and [0034]). Regarding claim 18 a battery capacity of not less than 5 Ah is disclosed in paragraph [0036] ("47 Ah"). Regarding claims 20 the battery is used for an electric vehicle (see paragraph [0002]). Regarding claim 22, a total cross-sectional area of all the positive electrode tabs connected to the positive electrode being not less than 0.014 cm^2 and being aluminum (see paragraph [0040] where an aluminum tabs cross section of " 1.5 mm^2 ", which is 0.015 cm^2 is disclosed) and a total cross-sectional area of all the negative electrode tabs connected to the

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negative electrode being not less than 0.008 cm^2 and being copper (see paragraph [0040] where a copper tabs cross section of " 0.83 mm^2 ", which is 0.0083 cm^2 is disclosed).

9. Claims 8, 13, 15, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-185850, which is discussed above regarding claim 7.

Regarding claims 8, 13, 25 and 27, specific values of the ratio of tab cross-sectional area to the internal resistance of the battery are not disclosed by the reference.

However, it is stated that tab cross-sectional area should be selected in proportion to the resistance of internal components of the battery (see paragraphs, [0031], [0032], and [0042]). Therefore it is considered that it would have been obvious to one of ordinary skill in the art to have selected an optimal or workable range of the claimed ratios. See *In re Aller* 105 USPQ 233, 235 (CCPA 1955). Regarding claim 15, while JP 8-185850 does not explicitly state that the resistance values of tabs are within 20% of an average value, it is considered that use of the word "units" throughout the reference would have suggested to one of ordinary skill in the art to have repeated substantially identical items.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-185850 in view of Kita et al. (US 5,849,431). JP 8-185850 is discussed above regarding claim 7. JP 8-185850 does not disclose a specific value from the internal resistant of the battery or the contribution of the tabs thereto. Kita ('431) teach that, in a secondary battery with tabs, it is possible (and desirable) to minimize internal resistance by increasing the number of tabs (see col. 2, lines 4-9 and 53-57). Therefore, it is

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considered that it would have been obvious to one of ordinary skill in the art to have minimized the internal resistant of the battery of JP 8-185850 and the contribution of the tabs thereto, as taught by Kita ('431) to avoid overheating the battery (see col. 1 line 64 to col. 2 line 8 and col. 2, lines 53-57).

11. Claims 5, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-185850 in view of Watanabe et al. (US 6,106,975) as applied to claims 4 and 22 above, and further in view of Kita et al. (US 5,849,431). JP 8-185850 does not disclose a specific value from the internal resistant of the battery or the contribution of the tabs thereto. Kita ('431) teaches that, in a secondary battery with tabs, it is possible (and desirable) to minimize internal resistance by increasing the number of tabs (see col. 2, lines 4-9 and 53-57). Therefore, it is considered that it would have been obvious to one of ordinary skill in the art to have minimized the internal resistant of the battery of JP 8-185850 and the contribution of the tabs thereto, as taught by Kita ('431) to avoid overheating the battery (see col. 1 line 64 to col. 2 line 8 and col. 2, lines 53-57).

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-185850 in view of Ferguson (US 597,969). JP 8-185850, discussed above regarding claim 8, fails to disclose tabs having a narrow portion. Ferguson ('969) teaches providing a tab fuse with a narrow portion (see page 1, lines 42-91). It is considered that it would have been obvious to one of ordinary skill in the art to have provided the tab fuses of JP 8-185850 with a narrow portion as taught by Ferguson ('969) because Ferguson ('969) states that the narrow portion provides several advantages such as

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allowing for improved cooling under normal loads and minimizing production of melted metal (see page 1, lines 66-91).

Response to Arguments

13. Applicant indicates that, as amended, claim 3 is no longer a substantial duplicate of claim 4. However, now claim 3 is a substantial duplicate of claim 22.

14. Applicant argues regarding JP 8-185850 that, while the tabs of the reference are extensions of the electrodes, the limitation "connected to" is not satisfied. Applicant states that way the tabs of JP 8-185850 are made "would result in significant material waste as well as great inconvenience and inefficiencies in manufacturing". However, "[t]he patentability of a product does not depend on its method of production" *In re Thorpe* 227 USPQ 964, 966 (Fed. Cir. 1985). While the process by which the tabs and electrodes of the instant invention and prior art are caused to connected may be different, the prior art satisfies all the structural limitations implied by "connect to".

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 703-308-1121. The examiner can normally be reached on 8:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



David Sorkin

May 8, 2003


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